Research Article

Determining the spiritual well-being of patients with spinal cord injury

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Context/Objective: The present study was designed to determine the spiritual belief levels of patients with spinal cord injury as well as to examine the socio-demographic factors that affect their spiritual beliefs.
Design: This study was designed as a descriptive study.
Setting: The physical therapy and rehabilitation unit of a city Education and Research hospital.
Participants: All patients over the age of 18 years who have had spinal cord injuries.
Outcome Measures: Data for the study were collected using a questionnaire and the FACIT-Spiritual Well-Being Scale.
Results: People with SCI in the eastern region of Turkey demonstrate moderately high levels of spiritual well-being. A significant correlation was identified between socio-demographic characteristics, such as age, marital status, level of income, status of receiving care, and duration of diagnosis, and the spiritual well-being of patients with spinal cord injury. While previous studies have been conducted in Christian communities, the current study was the first to be conducted in a Turkish (primarily Muslim) community. Therefore, the current study will significantly contribute to the literature an explanation of the spiritual well-being of patients with spinal cord injuries in Muslim communities.
Conclusions: Degree of spiritual well-being in Turkey is similar to other regions studied to date. Spiritual well-being is important in coping with the physical, social, economic, and emotional problems experienced by patients after a spinal cord injury. Healthcare professionals are encouraged to support the spiritual needs of their patients.

Keywords: Spinal cord injury, Spiritual well-being, Rehabilitation

Introduction

Spinal cord injury (SCI) often occurs with trauma of the vertebrae that carry, protect, and move the spinal cord. Injury to the spinal cord is the result of compression, contusion, or crossing.[1] The causes of spinal cord injury can include traffic accidents, falls from a height, sports injuries, occupational accidents, shallow water diving, and everyday accidents, as well as a primary pathology of the vertebrae and the spinal cord itself (tumour, infection, bone diseases).[2] According to the WHO, between 250,000 and 500,000 people worldwide suffer a spinal cord injury each year. The majority of spinal cord injuries are due to preventable causes, such as road traffic crashes, falls, or violence. People with a spinal cord injury are two to five times more likely to die prematurely than people without a spinal cord injury, with worse survival rates in low- and middle-income countries.[21] Turkey's current population is approximately 80 million,[22] and there are approximately 650-1700 new SCI cases in Turkey each year.

SCI and spirituality

Spirituality is often divided into two types. The first, religious spirituality, can be defined as a relationship with God or a higher power[12] and is typically observed among individuals who attend organized religious services within a larger community. The other type, existential spirituality, is not directly related to a specific place of worship or a set of widely accepted ideals. Instead, it refers to a worldview or perspective in which individuals seek purpose in their lives and understand their lives as having meaning and value.[13]

According to the *Handbook of Religion and Health*, spirituality is distinguished from all other aspects of humanism, values, morals, and mental health by its

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connection to that which is sacred—the transcendent. The transcendent is defined as that which is outside of the self and yet also within the self; in Western traditions, it may be called God, Allah, HaShem, or a higher power. In Eastern traditions, it may be called the Brahma, Buddha, Dao, or ultimate truth/reality. Spirituality is intimately connected to the supernatural and the mystical, although it also extends beyond (and begins before). It traditionally includes both a search for, and discovery of, the transcendent; it involves a journey along a path from nonconsideration to questioning and then often to either staunch non-belief or belief. In the case of belief, it ultimately leads to devotion and, finally, surrender. There is a clear overlap between religious and existential spirituality;[14] given the multidimensional nature of this construct, studies examining spirituality should include measures of both existential and religious spirituality.

SCI in Turkey

All Turkish citizens receive health coverage, and all medical costs (including rehabilitation) are paid for by the government in the event of trauma or disease; however, patients are not systematically directed to rehabilitation hospitals. Patients with SCI are admitted to outpatient rehabilitation units on an individual basis after their primary care in surgical units. After their initial assessment by a physiatrist at the rehabilitation units, patients with SCI who are deemed likely to benefit from rehabilitation are hospitalized. Psychological, social, and cultural factors associated with SCI in Turkey, such as poverty, limited education, and low literacy, may make rehabilitation more difficult.[3] The hospital at which this study was conducted provides physical rehabilitation services to patients with spinal cord injuries in eastern Turkey. Since there is an excessive number of patients in this region, this hospital has difficulty meeting all patient requirements. Furthermore, patients in this region often have difficulty accessing treatment, as they have low education levels limited transport facilities.

SCI can result in a variety of health difficulties and functional challenges that may diminish quality of life.[4] In addition, functional impairments often limit vocational opportunities, further limiting personal independence and well-being within this population. These factors, along with societal stereotypes and negative attitudes towards individuals with disability, can lead to significant life dissatisfaction.[5] After a major health crisis, spirituality can play an important role in enhancing quality of life[6,7] by improving life satisfaction and facilitating coping,[8] which may ultimately decrease the length of hospitalization and the time needed for functional recovery.[9–11]

This is especially relevant for SCI survivors, for whom mobility may limit their ability to attend religious and spiritual practices that they may consider an important part of their experience of spirituality.[9] SCI is a profound and, in some cases, life-threatening experience that immediately and forcibly affects an individual both mentally and physiologically. Individuals are quite literally transformed within seconds from being totally physically independent to, in many instances, totally dependent on others to perform basic activities of daily living.

Matheis *et al.* determined that 99% of patients with spinal cord injury use spiritual coping and that the overall health and social functioning of those who used spiritual coping were higher than those who used religious coping.[9] In a study by Wilson *et al.,* patients with spinal cord injury revealed a strong positive correlation between spiritual belief and quality of life and a strong negative correlation between spiritual well-being and symptoms of major depression.[16] In the study conducted by Siddall *et al.*, to examine the effect of spiritual well-being on the pain and depression experienced by patients with spinal cord injury, there was a statistically significant correlation between low levels of spiritual belief and high levels of pain and depression.[17] Tate and Forchheimer investigated the spirituality, satisfaction with life, and life quality of patients in five diagnostic groups and found that patients with spinal cord injury had lower levels of spiritual belief than patients in other groups (cancer, amputation, poliomyelitis, and AIDS). The literature reflects the importance of spiritual belief for people with spinal cord injury.[18]

Purpose of the current study

No studies in the literature have assessed the spiritual well-being of patients with spinal cord injuries in Turkey. The purpose of this study was to determine the spiritual well-being of patients with spinal cord injury in the eastern region of Turkey and to identify the socio-demographic factors with which it is associated.

Materials and methods

Design

This is a descriptive study.

Time and place of the study

The present study was conducted on patients with spinal cord injury who received outpatient and inpatient physical treatment in the Department of Physiotherapy and Rehabilitation at the Malatya Education and Research

Hospital between June 2016 and August 2017. This hospital is located in the eastern region of Turkey.

Setting

The sample population of this study consisted of patients who were treated in the physical therapy and rehabilitation unit of the Malatya Education and Research Hospital. These patients were physically treated in this clinic on an inpatient or outpatient basis. Due to the small number of cases, sample selection was not performed in this study. All patients who were interested and eligible for the study were allowed to participate. One hundred and twenty-five patients were contacted in the investigation. The inclusion criteria for the patients were the ability to communicate and a duration of at least three months since their spinal cord injury.

Interventions

Data for the study were collected using a questionnaire and the FACIT-Sp12 scale. All participants received usual clinical care.

Outcome measures

Questionnaire

The questionnaire was developed by the researchers of this study and included 21 items regarding patients' socio-demographic characteristics (e.g. age, gender, marital status).

The FACIT Spiritual Well-Being Scale (FACIT-Sp)

The FACIT-Sp was developed by Peterman *et al.* to assess the spiritual well-being of cancer patients or individuals with other chronic diseases. It enables a profound examination of the components of spiritual well-being by using three subscales (peace, meaning, and faith). The FACIT-Sp is a Likert-type scale that includes 12 items, which are ranked between 0 and 4 (0 never; 4 always). The three subscales – meaning (items 2, 3, 5, and 8), peace (items 1, 4, 6, and 7), and faith (items 9-12) – each have a total score range of 0-16, with total scores of the complete scale ranging from 0 to 48. A higher score signifies greater spiritual well-being. The FACIT-Sp measure was originally developed with two components that gave an overall score, namely, a four-item faith component and an eight-item meaning/peace component. Recently, the joined components were isolated, thus comprising separate four-item subscales for meaning and peace in addition to the four-item faith subscale. Recent studies have shed new light on the topic, showing that the three-factor model has a better fit.[23–26]

The scale can be applied in five to six minutes. Peterman *et al.* (2002) determined that the value of Cronbach's alpha for the scale ranges from 0.81 to 0.83.[19] A study of the validity and reliability of the Turkish version of the FACIT-Sp was conducted by Aktürk *et al.*: the Cronbach's alpha for the FACIT-Sp was 0.87, meaning the sub-scale had a Cronbach's alpha of 0.78, the peace sub-dimension had a Cronbach's alpha of 0.81, and the belief sub-dimension had a Cronbach's alpha of 0.93.[20] In the present study, Cronbach's alpha was determined to be 0.88 for the FACIT-Sp, 0.80 for the meaning subscale, 0.81 for the peace subscale, and 0.95 for the faith subscale.

Ethical principles of the study

Ethical approval for our study was received from the Malatya Clinical Trials Ethics Committee. Written permission was also obtained from the head physician at the training and research hospital's Department of Physical Therapy and Rehabilitation. Before filling out the data-collection forms verbal and written approvals of the patients participating in the study were obtained. Patients were informed that they were free to participate in or withdraw from the study.

Application of data collection tools

The data for this study were collected in the nurse room of the Physical Therapy and Rehabilitation unit of Malatya Education Research Hospital. Each interview was conducted individually in the nurse's room to ensure the patients' confidentiality. The researchers read the questions in a face-to-face forum and recorded the patients' answers on data collection forms. Each interview took 15-20 minutes.

Data analysis

The SPSS 18 package programme was used for evaluation of the research data. Statistical significance of the data was evaluated at the $P < 0.05$ level. Descriptive statistical methods, such as percent, frequency, and mean, were used to determine the demographic characteristics and scale score of the patients in the study. In comparing the demographic characteristics (age, gender, marital status, educational level, etc.) of patients and FACIT-Sp scale scores, t test, one-way analysis of variance (ANOVA), Mann-Whitney U test, and Kruskal-Wallis test were used.

Results

Participant demographics

The demographic and disease characteristics of the participants are shown in Table 1. Overall, 28.9% of patients were aged 58-80 years, 25.0% were aged 38-47

Table 1 Descriptive characteristics of the patients who participated in the study (N = 125).

Descriptive characteristics	N	%
Age		
18-27	25	20.0
28-37	20	16.5
38-47	36	28.8
48-57	22	17.6
58 and +	22	17.6
Sex		
Women	37	29.6
Men	88	70.4
Marital status		
Married	86	68.8
Single	39	31.2
Education level		
Illiterate	15	12.0
< Primary school	16	12.8
Primary school	59	47.2
High school	27	21.6
University	8	6.4
Income Status		
Good	6	4.8
Middle	80	64.0
Bad	39	31.2
Employment situation		
Employed	7	5.6
Unemployed	118	94.4
Number of children		
0	30	24.0
1-3	35	28.0
4-6	49	39.2
7 and +	11	8.8
Receiving care supports		
Yes	109	87.2
No	16	12.8
Providers of Care		
Spouse and Children	93	74.4
Parents	32	25.6
Duration of spinal injury		
3-6 month	18	14.4
7-12 month	53	42.4
1-3 year	26	20.8
4-6 year	13	10.4
7 and +	15	12.0
Work before injury		
Yes	66	52.8
No	59	47.2
Cause of injury		
Traffic accident	32	25.6
Fall	72	57.6
Work accident	15	12.0
Injury (weapon, knife)	6	4.8
Chronic disease		
Yes	45	36.0
No	80	64.0
Reported receiving training about your illness and treatment?		
Yes	44	35.2
No	81	64.8

years, 70.4% were male, 68.8% were married, 47.2% were primary school graduates, 64.0% had a moderate-income level according to the patients' own assessments, and 86.1% were unemployed. Furthermore, 39.2% of the patients had 4-6 children, 86.9% were receiving care, 74.4% were provided care by their spouses and children, 52.8% had worked before their injury, 57.6% had received their spinal cord injury due to a fall, and 64.0% had no other chronic illness (Table 1).

Table 2 Spiritual well-being in relation to selected measures: Means (M), standard deviation (SD), Cronbach's alpha.

Construct FACIT-Sp			
SCALE	Score range	M ± SD	Cronbach's Alpha
Three-factor solution			
Meaning Subscale	0-16	12.78 ± 3.1	0.80
Peace Subscale	0-16	10.76 ± 3.9	0.81
Faith Subscale	0-16	12.20 ± 4.2	0.95
Spiritual well-being Total	0-48	35.74 ± 8.7	0.88

Spirituality

Cronbach's alpha was determined to be 0.88 for the FACIT-Sp, 0.80 for the meaning subscale, 0.81 for the peace subscale, and 0.95 for the faith subscale (Table 2).

Spiritual well-being level is reflected by the quality of relationships that people have in one or more of four domains (Personal, Communal, Environmental and Transcendental domains). The choice as to which of these domains is important for spiritual well-being is influenced by the worldview and beliefs of each person. The level of spiritual well-being of participants was moderately high in general with scores. A comparison of the socio-demographic characteristics of patients with spinal cord injury and the FACIT-Sp scores recorded in the study showed a statistically significant correlation between patients' age and their subscale scores. There was also a statistically significant correlation between marital status of the patients and overall spiritual well-being as well as the subscales of meaning and faith. A statistically significant correlation was found between patients' level of income and the meaning subscale. Finally, there was a statistically significant positive correlation between patients' situation of receiving care support and overall spiritual well-being, including all subscales (Table 3).

Discussion

Degree of spiritual well-being

The FACIT total score and meaning, peace, and belief subscale scores of patients with spinal cord injuries were found to be moderately high in our study. In the Tate and Forchheimer study, patients' FACIT scale scores were found to be moderately high, similar to our study.[18] In the study by Siddall *et al.* on the spiritual

Table 3 Comparison of demographic characteristics of patients and FACIT-Sp (N = 125).

Characteristics	n	Meaning	Peace	Faith	Spiritual well-being
Age					
18-27	13	10.59 ± 3.5	9.8 ± 2.9	10.90 ± 4.3	35.13 ± 12.0
28-37	8	11.63 ± 2.8	10.09 ± 3.2	11.68 ± 4.6	36.22 ± 8.3
38-47	19	12.10 ± 3.3	10.52 ± 2.6	12.52 ± 3.2	37.58 ± 8.6
48-57	14	12.95 ± 2.6	11.72 ± 3.01	13.55 ± 3.3	38.95 ± 9.3
58 and +	22	13.24 ± 2.8	12.15 ± 3.2	14.12 ± 2.6	39.80 ± 8.6
P		P = 0.024	P = 0.042	P = 0.036	P = 0.491
		$KW^2 = 2.882^a$	$KW^2 = 9.571^a$	$KW^2 = 10.271^a$	$KW^2 = 3.415^a$
Sex					
Female	37	12.91 ± 2.9	12.13 ± 4.1	12.83 ± 3.8	38.27 ± 9.8
Male	88	12.25 ± 3.1	10.97 ± 3.6	12.20 ± 3.7	36.69 ± 9.5
P		P = 0.275	P = 0.126	P = 0.391	P = 0.405
		$t = 1.097^b$	$t = 1.542^b$	$t = 0.861^b$	$t = 0.835^b$
Marital status					
Married	86	12.97 ± 2.8	12.24 ± 3.7	12.86 ± 3.5	39.20 ± 8.7
Single	39	11.69 ± 3.9	11.17 ± 4.2	11.05 ± 4.9	35.59 ± 9.7
P		P = 0.041	P = 0.160	P = 0.022	P = 0.045
		$t = 2.067^b$	$t = 1.415^b$	$t = 2.326^b$	$t = 2.027^b$
Education level					
Illiterate	15	11.53 ± 4.1	11.20 ± 4.7	12.93 ± 3.7	39.40 ± 9.8
< Primary school	16	12.12 ± 3.5	11.87 ± 4.2	11.93 ± 5.1	37.68 ± 10.1
Primary school	59	12.42 ± 3.0	12.05 ± 3.8	12.62 ± 3.6	38.40 ± 8.5
High school	27	13.00 ± 3.5	11.22 ± 4.2	13.50 ± 4.7	36.74 ± 10.5
University	8	14.25 ± 2.2	12.00 ± 3.1	12.85 ± 4.5	39.62 ± 7.0
P		P = 0.341	P = 0.942	P = 0.268	P = 0.329
		$KW^2 = 4.512^a$	$KW^2 = 0.776^a$	$KW^2 = 5.448^a$	$KW^2 = 4.613^a$
Income Status					
Good	6	13.83 ± 2.9	12.66 ± 3.7	13.33 ± 4.1	39.16 ± 7.9
Middle	80	12.80 ± 3.0	12.02 ± 3.7	12.53 ± 4.1	38.35 ± 8.9
Bad	39	11.20 ± 3.7	10.41 ± 3.9	11.41 ± 4.4	36.97 ± 9.8
P		P = 0.024	P = 0.110	P = 0.289	P = 0.740
		$KW^2 = 7.470^a$	$KW^2 = 4.419^a$	$KW^2 = 2.480^a$	$KW^2 = 0.602^a$
The receiving care supports					
Yes	119	12.34 ± 3.5	12.50 ± 3.8	12.57 ± 4.0	40.19 ± 7.7
No	16	9.8 ± 3.0	9.5 ± 3.9	9.9 ± 4.5	35.05 ± 8.4
P		Mann-Whitney U = 548.500^c	Mann-Whitney U = 548.500^c	Mann-Whitney U = 651.000^c	Mann-Whitney U = 625.000^c
		P = 0.003	P = 0.003	P = 0.020	P = 0.016
The length of time of spinal injury					
3-6 month	18	13.60 ± 2.5	12.73 ± 3.3	13.38 ± 3.0	40.10 ± 10.01
7-12 month	53	13.00 ± 2.6	12.45 ± 3.8	12.80 ± 3.9	39.46 ± 8.0
1-3 year	26	12.34 ± 3.3	11.46 ± 4.5	12.01 ± 4.2	38.28 ± 9.1
4-6 year	13	12.13 ± 3.7	11.38 ± 4.4	11.84 ± 4.3	37.33 ± 8.9
7 and +	15	11.66 ± 3.8	10.88 ± 4.3	11.05 ± 5.5	36.50 ± 10.1
P		P = 0.612	P = 0.615	P = 0.813	P = 0.711
		$KW^2 = 2.685^a$	$KW^2 = 2.667^a$	$KW^2 = 1.576^a$	$KW^2 = 2.133^a$

[a]= Kruskal Wallis, [b]= Unpaired t test, c=

beliefs of patients with spinal cord injuries, the FACIT scale scores of the patients were moderate.[19] In Marini *et al.*'s study, patients were more focused on religious and spiritual practices after spinal cord injury. Furthermore, the majority of participants expressed overall satisfaction with God or a Spiritual Power and that God or a Spiritual Power helped them cope, gave them meaning, and was a source of happiness in their lives.[15] According to these findings that the spiritual well-being level of patients with spinal cord injury is moderately high. A spiritualist perspective might contribute to a sense of hope and optimism about one's present and future life. This optimism may further result in a more positive assessment of overall well-being.[9] Consistent with this, McColl *et al.* reported that SCI survivors who were spiritual were more hopeful about remaining independent and therefore experienced less vulnerability.[6]

Factors associated with well-being

When the FACIT-Sp scores and socio-demographic characteristics of the patients were compared, a significant correlation was determined between patients' age and the subscales for meaning, peace, and faith. Specifically, FACIT-Sp scores and subscale scores increased with age. Similar to the present study, Tate and Forchheimer determined a statistically significant correlation between the increased age of patients and increased FACIT-Sp and subscale scores.[16] In contrast, Matheis and Tulsky did not find a significant correlation between the age and spiritual well-being of patients with spinal cord injury.[9]

Spiritual well-being studies of patients with spinal cord injury in the literature are limited. Similar well-being studies have been conducted on patients with cancer and may be relevant for the purposes of wider comparison of the effect of age on well-being: in a study by Peterman *et al.,* there was a significant correlation between the age of patients and their FACIT-Sp total and subscale scores, as both increased with increasing age.[19] In a study by Munoz *et al.,* it was also found that the FACIT-Sp score and subscale scores increased with the increasing age of the patients; however, scores decreased in patients older than 80 years. It is possible that factors, such as a fear of death, may influence the spiritual well-being of patients over 80.[27]

In the present study, no significant correlation was observed between the sex of patients and their FACIT-Sp totals and subscale scores. However, the FACIT-Sp total and subscale scores of female patients were observed to be higher than those of male patients. A study by Kathleen *et al.* on patients with AIDS yielded a different result: the spiritual scale scores of women (n = 6) were lower than the scores of men (n = 40), but there was no statistically significant difference between them.[28]

The present study revealed a statistically significant correlation between marital status of patients and their overall FACIT-Sp score, as well as the subscales of meaning and faith. The overall FACIT-Sp scores and all subscales of married patients were identified as higher. The literature also revealed a statistically significant correlation between marital status and FACIT-Sp scores and subscale scores. Married patients were also observed to have a higher spiritual well-being than single or divorced patients.[18,19]

In the present study, there was no statistically significant correlation between patients' educational level and their FACIT-Sp totals and subscale scores, a finding similar to that of other investigations in other regions of the world.[9,18,19]

In the present study, a significant relationship was found between the level of income perceived by the patients and the FACIT-Sp totals and subscale scores. According to this finding, it was determined that the patients with higher perceived income levels had higher spiritual belief scores than those with perceptions of middle and low income. It was found that high-income patients with spinal cord injury also have a high level of spiritual well-being. This might be because having a high income often has a positive impact on cognitive, emotional, and behavioral relationships among family members (including spouses). Patients with a higher income also have the ability to obtain extensive treatment options, better care standards, higher quality of life, and a reduced perception of themselves as a burden for others.

In the present study, there was a statistically significant correlation between FACIT-Sp totals and subscale scores in patients with spinal cord injuries receiving care support. For patients with spinal cord injury, care support might be influential in increasing these patients' self-esteem, ability to cope with stress, give them more time to spend on spiritual values, and may increase their spiritual well-being.

According to the present study, as the length of the spinal cord injury period increased, their FACIT-Sp totals and subscale scores decreased. Matheis and Tulsky identified a negative correlation between the length of time of spinal cord injury and the patients' spiritual well-being.[9] Marini and Glover-Graf observed that scores of attitude, faith, and practice associated with religiousness and spirituality decreased as the time with the spinal cord injury increased.[15] In contrast,

the study on AIDS patients by Kathleen *et al.* found that patients with a duration of diagnosis of 10 years or longer had a higher general well-being score than patients with a duration of diagnosis shorter than 10 years; the correlation between them was statistically significant.[28] These findings support our hypothesis that there is an association between patients' demographic factors (age, marital status, perceived income status, provided care, etc.) and their scores on the spiritual well-being scale and subscales (meaning, peace, faith). Tate and Forchheimer's study also hypothesized that there was a relationship between the demographic factors of patients with spinal cord injuries and their spiritual well-being, consistent with our findings.[18]

Limitations

Some limitations of this study are as follows. This study evaluated patients admitted to only one hospital, in Malatya. Patients living in other parts of the country may have different types of spiritual well-being, different coping mechanisms, and different results. However, as Malatya Education Research Hospital is a national referral center, the patients were admitted from many areas in the eastern region of the country. To overcome the aforementioned limitation, the researchers attempted to raise the sample variance by selecting patients who had been referred from different parts of the country. Only patients who were willing to participate in the project were enrolled into the study. Since the main language used in the research was Turkish, those who could not speak Turkish (for example, Kurdish patients and Syrian migrants) were not included in the survey; thus, certain subpopulations of SCI patients in Turkey were unable to contribute. Multiple pair-wise statistical comparisons were performed, which raises the possibility of a Type 1 error (finding a difference that is actually due to chance rather than a true difference). It was reasonable to take this approach given the exploratory nature of the study, but it is still a limitation that should be acknowledged.

Conclusion

In our study, the FACIT-Sp scores of patients with spinal cord injury were found to be moderately high. In the present study, a significant correlation was identified between socio-demographic characteristics, such as age, marital status, level of income, status of receiving care, and duration of diagnosis, and the spiritual well-being of patients with spinal cord injury. Spiritual well-being is important in coping with the physical, social, economic, and emotional problems experienced by patients after a spinal cord injury; therefore, healthcare professionals must support patients accordingly. It is our hope that this study will draw attention to the important issue of spiritual well-being and offer nurses and doctors a way of understanding the spiritual well-being situations that might arise for their patients, as well as the implications of spiritual well-being.

Disclaimer statements

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